Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Her Iechyd Cymru
Health Challenge Wales

Hydatid Disease - Question and Answer Sheet

1. **What is Hydatid Disease?**
   Hydatid Disease is caused by a tapeworm known as *Echinococcus granulosus*. Eggs are laid by the adult tapeworm in dogs and are passed in dog faeces contaminating grass, the dog's hair, mouth and environment, possibly the garden vegetables. These eggs are picked up by grazing cattle and sheep or accidentally by humans. Each egg hatches in the intestine of the recipient and the early stage of the parasite is carried via the blood stream to various parts of the body – particularly to the liver, lungs and sometimes to the brain, where they slowly develop into hydatid cysts (fluid filled sacs).

   Hydatid cysts can grow quite large and contain many young tapeworms floating in clear fluid. These cysts can be seen at slaughter in ruminants and can be recognised as round swellings in the liver and lungs.

   If a dog is fed infected raw offal/meat or allowed to scavenge on (infected) carcasses, the young tapeworms are released from the cysts and grow to adult tapeworms inside the dog's intestine. These, in turn, produce more eggs and cause further spread of infection, completing the cycle. Dogs can start to shed eggs and be a potential source of infection to humans from 6 weeks after having ingested infected offal/carcass material.

Welsh Assembly Government Hydatid Disease Campaign

2. **What is the Hydatid Disease Campaign?**
   The Hydatid Disease Campaign aims to raise awareness of the disease and promotes the benefits of regular worming. There will be a number of publicity articles in Gwlad and the farming press as well as information available at various agricultural shows and events.

3. **Why is the campaign taking place?**
   The University of Wales, Cardiff carried out a survey in 2002, suggesting that levels of infection in dogs had again reached relatively high levels in south Powys. The Welsh Assembly Government's Interspecies Infection Group agreed that action needed to take place to reduce the risk of transmission to the human population. This campaign aims to raise the awareness of the tapeworm in dogs, with the aim of preventing a cross over of infection to humans.

4. **Are there any areas of Wales where there is evidence of occurrences of Hydatid?**
   South Powys was once a "hot spot" area of human infection. The Campaign will re-visit the evidence in the South Powys area in order to review the level of risk of infection.

5. **I already worm my dogs. Am I using the right tablets?**
   It is always advised to consult your vet about correct treatment and dosage. Generally, there are two important aspects to protecting yourself and your family, especially children, from worms that may be carried by dogs:
   - the choice of treatment, and
   - the frequency (regularity) of dosing

   There are two types of worms carried by dogs which require different drugs to treat them. Some products combine both treatments in one tablet. To prevent Hydatid Disease there is only one licensed active ingredient (praziquantel) and currently four licensed products on the market, effective in removing Hydatid tapeworms from dogs.

6. **Will my dogs need additional wormer for roundworm infection?**
   Dog owners should discuss the worming needs of their dog with their vet. It is important to use a product that is effective against both roundworms and tapeworms.

Human concerns

7. **How do humans become infected?**
   Humans can pick up the infection, directly or indirectly, from infected dogs. People, especially children, become infected by ingesting eggs through hand to mouth transfer of eggs after contact with infected dogs. Infection may also occur following ingestion of food, especially garden vegetables, water or soil which has been contaminated by infected dog faeces. Dogs can start to shed eggs and be a potential source of infection to humans from 6 weeks after having ingested infected offal/carcass material.

8. **How is Hydatid Disease treated in humans?**
   The only effective treatment for Hydatid Disease in humans is the surgical removal of cysts. However, surgery is specialised as there is a risk of the cysts bursting and causing acute shock. The immediate consequence of a ruptured cyst is life threatening, with the associated risk of releasing thousands of worm heads into the body.

9. **What are the symptoms of Hydatid Disease in humans?**
   Hydatid Disease in humans causes distressing problems. Cysts grow in the lungs, liver, brain or bone. They can be very large; sometimes cysts as large as a football have been removed. A Hydatid cyst develops slowly and is tolerated by an infected person until it is large enough to cause problems within the body.

   Symptoms are dependant upon the position of the Hydatid cyst in the body. Cysts in the lungs cause breathing difficulties and general illness. In the liver they cause swelling of the abdomen and general illness and on the brain they cause symptoms similar to a tumour. Cysts in the bone marrow can cause great pain.

Unfortunately, surgical removal does not prevent other cysts growing and causing more problems. Surgery to remove cysts is specialised and great care has to be taken to prevent the cysts from bursting. Should cysts burst, thousands of worm heads or immature worms can be released and cause extreme shock in the patient and longer term problems when more cysts develop.

There are currently no effective drug treatments or vaccines to protect humans against the disease.

10. Is Hydatid Disease contagious? Can I pass the disease on to other members of my family?

Hydatid Disease is not contagious and cannot be passed from person to person but it is more likely that more than one family member will get Hydatid Disease if the family dog/s is/are infected.

11. How many cases of human Hydatid Disease have there been in the last 10 years?

Numbers of cases have been relatively small across the UK in recent years and most cases have resulted following exposure abroad. The issue for Wales is to prevent the re-emergence of a disease that had largely disappeared in humans.

12. How many humans have died from Hydatid Disease in the last 10 years?

There is no data to suggest there have been high numbers of deaths from Hydatid Disease as this is largely a prevented disease in the UK, most recent cases having resulted from exposure abroad. A priority of awareness campaign is to prevent its re-emergence.

Animal concerns

13. How are dogs, cattle, sheep and other domestic animals affected by *Echinococcus granulosus. (Hydatid tapeworm)* infection?

There are very few side effects in dogs when infected with the *Echinococcus granulosus* tapeworm. There may be up to 5% loss of productivity in infected sheep, but the main clinical significance of infection is the risk from carrier dogs posed to humans. There are no specific significant clinical signs of infection in live domestic animals. Carcass condemnation at abattoir inspection, especially the red offal, means a reduced income for farmers whose stock are affected and a greater cost to abattoirs (passed on to farmers) in disposing of rejected meat.

14. How are *Echinococcus* tapeworms identified in dogs?

Eggs are passed in the faeces of infected dogs. It is not possible to identify these eggs by microscopic examination of faeces as they are visually identical to eggs of other tapeworms that may infect dogs. The “copro-antigen test” is used to detect the presence of the Hydatid worm in dogs. This test is performed in a laboratory and is able to detect proteins excreted by the worm and present in the dog’s

faeces. Dogs used to be purged and the purge examined for entire worms. This method was not very reliable and unpleasant for the dog.

15. How can *Echinococcus* infection be identified in farm animals?

There are no specific signs of Hydatid Disease in live farm animals. Hydatid infection may be detected at slaughter or at post mortem examination as cysts in mostly the liver and lungs.

16. How can dogs become infected with *Echinococcus*?

Dogs can pick up Hydatid tapeworms if they are fed raw carcass meat and offal. Dogs that are allowed to roam may scavenge on dead animals, picking up Hydatid tapeworms from this activity.

17. How can *Echinococcus* infection be prevented in dogs?

Echinococcus tapeworms can be eliminated from dogs with a sufficient dose of a wormer containing praziquantel. Treatments at 6 weekly intervals will ensure that at risk dogs stay free of infection. Dog owners should ensure that they only feed cooked dog food to their dogs, that dogs do not gain access to sheep carcasses or raw offal and that they are not allowed to roam. Under these circumstances the dosing interval to prevent Hydatid could be extended. Dog owners should discuss worming needs with their vet who will carry out a risk assessment, based on the particular needs of the dog.

18. If my dog is infected with Hydatid Disease will this infect my other animals?

Many species of animals may become infected with Hydatid cysts if they swallow infective eggs. Usually sheep and cattle are most at risk but potentially any mammal can be infected, e.g. goats and pigs. There is also a strain of *Echinococcus granulosus* in Britain that infects horses but this is a separate strain to the one found in sheep and cattle and does not appear to pose a threat to human health.

19. How can *Echinococcus* infection be prevented in sheep and cattle?

It is currently thought that the elimination of the tapeworm from dogs will free sheep and cattle of infection, though tapeworm eggs can persist in the environment for years. Wild foxes, although occasionally suspected, are not currently considered to be important in the spread or maintenance of disease.

20. Can all dog breeds become infected with *Echinococcus*?

Yes but the Border collie is thought to be especially susceptible to infestation with *Echinococcus*, although this may merely reflect their level of exposure on sheep farms.

21. Will I be able to bring my dog into Wales if visiting from other parts of the UK?

Tourists are advised that it is safe to bring dogs into Wales provided they are routinely and effectively wormed with a product that is also effective for *Echinococcus* tapeworm beforehand, to ensure that farmed livestock are protected from disease. Following your visit, and if you believe your dog may have been exposed to sheep carcasses or uncooked offal, you are advised to treat the dog with a licensed dog wormer containing the drug praziquantel. There is no harm to your dog from the use of these wormers and it is a wise precaution to worm your dogs after any trips to the countryside or every 6 weeks. When walking in country areas your dog should always be under close supervision and should be on a lead if walking through livestock. You should collect and safely dispose of your dogs faeces when out and about.

22. Is it safe to walk my dog in fields containing sheep?

Dogs can only become infected if they swallow infected cysts found within carcasses or in contaminated material such as uncooked sheep meat or offal. Dogs should always be on a lead when walked close to or amongst sheep or other livestock. Extreme care should be taken when walking dogs in areas where sheep and cattle graze so as not to disturb or distress them, particularly during the lambing and calving season.

23. I regularly walk my dog in the countryside of Wales. What should I do?

Ensure your dog is well supervised when walking. Regular worming protects your dog's and your family's health, so a 6 weekly worming routine throughout the walking season would be sensible. The risk is low if your dog avoids contact with sheep carcasses.

24. Can my dog pick up *Echinococcus* tapeworm heads from grass?

Dogs become infected from the larval form found in cysts. It is theoretically possible for material from a burst cyst from a dead animal that has been scavenged, to contaminate grass but this is unlikely and any such material would not survive for long. Thus, this is very unlikely.

25. What is a praziquantel wormer?

Praziquantel is an active ingredient only available in certain licensed products and the only one available in the UK that is 100% effective against Hydatid tapeworms. They are safe, effective and do no harm to your dog. Availability of these wormers is generally restricted and they can be dispensed by vets, pharmacists and "suitably qualified persons" (SQPs). You can purchase suitable treatments as "over the counter wormers" at vets, pharmacies and pet shops (who have an SQP present). Always ask if the wormer you plan to use contains praziquantel. Not all tapeworm medicines contain this drug. It is important that you plan the worming regime of your dogs and that it is discussed with your vet. Dose rates and timings of drugs are very important. Having an accurate weight of your dog is an essential part of the treatment.

General concerns

26. How can Hydatid Disease be prevented?

The incidence of Hydatid Disease can be reduced if the following are adhered to:

- Worm dogs with a wormer containing praziquantel every six weeks
- Feed dogs with cooked and/or dry processed dog foods or meat and bones that have been inspected and declared fit for human consumption
- Do not allow dogs to roam
- Wash hands after handling dogs
- Wash all fruit and vegetables thoroughly before eating or cooking

27. Is Hydatid Disease only found in Wales?

No, it is not confined to Wales but the historical occurrence in humans in England and Scotland is lower. The historical high level of infection in Wales is thought to be due to the high density of sheep and extensive hill farming systems. A number of sheep die on hill grazings and will be found by straying dogs before the owner can remove them.

28. Can Hydatid Disease be eradicated?

Hydatid Disease has previously been eradicated in Iceland, New Zealand and Tasmania. Iceland took 100 years to eradicate, New Zealand 50 and Tasmania 10 years. Tasmania quarantined infected dogs and undertook an education campaign. It is estimated that if all dog owners regularly worm Hydatid Disease in Wales could be eradicated in 10 - 20 years. The life-cycle of the parasite becomes unsustainable below a certain density of infection in either host (dog or ruminant (sheep/cattle)) and where insufficient opportunities exist for animals to become infected. If the disease is eradicated in Wales, it is thought that it will also be eradicated from GB.

29. Can I pick up *Echinoccocus* eggs from unwashed fruit and vegetables?

Yes, if they inadvertently become contaminated by dog faeces containing *Echinoccocus granulosus* eggs. It is always wise to wash fruit and vegetables before eating to reduce the risk from a number of potentially harmful infections.

30. Where are the at-risk areas?

Historically the main areas for Hydatid Disease in dogs and livestock are South Powys, Monmouthshire and farms on the southern slopes of the Brecon Beacons and Black Mountains. However, there is no recent research in other parts of Wales and the rest of GB about incidence. The message throughout Wales and GB should be to ensure that dogs in all areas are not subjected to conditions which will lead to infection. See Question 16, 17 and 26. There is also historically a pocket of disease in south Hereford adjoining mid Powys which could move into Wales if no control and/or regular dog worming is not carried out there.

31. How does this campaign fit in with other Welsh Assembly Government strategies?

The Hydatid Disease campaign is part of the Wales Animal Health and Welfare Strategy Action Plan for 2009-2010. It aims to engage companion animals owners within the Strategy. The Chief Veterinary Officer is raising awareness of the effects of Hydatid Disease in order to reduce and to prevent incidences of human infection, as part of the Assembly Government's response to Health Challenge Wales. Health Challenge Wales is the national focus for action to improve health and well-being and to prevent ill health.

32. What problems can other worms cause?

There are a number of other species of intestinal worm with which dogs may become infected. These are roundworms (Nematodes) and tapeworms (Cestodes). There are a number of dog worming products available, some of which contain a combination of drugs, some effective against one or the other type of worm only. Contact your vet for further information. Further details are below:

- The tapeworms that may infect dogs include a number of species of the *Taenia* family which have eggs which look identical to the Hydatid worm. *Taenia multiceps* generally causes gid in sheep but in very rare cases has caused cysts in the human central nervous system (brain).

- *Dipylidium caninum* can have implications for human health. It is a tapeworm of a flea. Dogs become infected when grooming and swallowing fleas. This is a relatively common but harmless tapeworm but on occasion has been known to infect children who accidentally swallow fleas when playing with dogs. This can be prevented if your dog has been provided with an appropriate flea treatment.

- *Toxocara Canis* is a roundworm of dogs. Puppies in particular can have heavy, life threatening infections. Humans can act as an accidental host for the migrating larval form with children being at particular risk. *Toxocara* eggs are very resistant and remain infective for a long time in the environment e.g. they can be found in parks where dogs are frequently walked. Worm eggs passed with dog faeces may stick to the fur of the dog. Humans become infected from contact with areas contaminated with dog faeces or from eggs from the dogs fur. *Toxocara* larvae can be found in any organ of the body, commonly they migrate to the liver and lungs causing fever and disease. The most serious condition results from larvae migrating into the retina (eye) which can result in blindness. Roundworms can be controlled by regular worming (not praziquantel). Speak to your vet to discuss worming treatments for your dog.

33. Who do I contact for further information?

Contact your vet for information on worming your dog, your GP for advice on human health concerns and for general information please visit www.wales.gov.uk/animaldiseases